

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference NMMP470034WO		FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/GB2004/004736	International filing date (day/month/year) 10.11.2004	Priority date (day/month/year) 10.11.2003	
International Patent Classification (IPC) or national classification and IPC F16H37/08, F16H37/10			
Applicant TOROTRAK (DEVELOPMENT) LIMITED et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 10.06.2005		Date of completion of this report 10.10.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Vogt-Schilb, G Telephone No. +49 89 2399- 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2004/004736

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-6 as originally filed

Claims, Numbers

1-7 as originally filed

Drawings, Sheets

1/3-3/3 received on 26.01.2005 with letter of 29.12.2004

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2004/004736

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1,2,4-7
	No: Claims	3
Inventive step (IS)	Yes: Claims	1
	No: Claims	3
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1 The following documents are referred to in this communication:

- D1: DE 101 54 095 A1 (DAIMLERCHRYSLER AG) 15 May 2003 (2003-05-15)
- D2: EP-A-1 061 288 (GENERAL MOTORS CORPORATION) 20 December 2000
- D3: US-A-5 564 998 (FELLOWS ET AL) 15 October 1996 (1996-10-15)
- D4: US-A-5 643 121 (GREENWOOD ET AL) 1 July 1997 (1997-07-01)
- D5: US-A-4 823 640 (DONNELLY ET AL) 25 April 1989 (1989-04-25)

2 INDEPENDENT CLAIM 3

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 3 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A CVT with

- a) a variator (6)
- b) a first epicyclic train (7) with the carrier (29) connected to the one side (13) of the variator and the sun (9) connected to the other side (14)
- c) a second epicyclic train (21) driven by the engine (4) with the carrier (23) connected to the one side (12) of the variator and the sun (24) connected to the other side (14)
- d) a final drive shaft (5)
- e) low regime clutch (16) connecting the output (ring 10) of the epicyclic (7) to the output shaft (5)
- f) a third mixing epicyclic train (32) disposed between the sun (9) (for construction necessity the sun 11 rotates in synchronism to sun 9 thus it is considered that the 32 is connected to 9 and receives the input of 10 with 16 applied).
- g) a second clutch 18 for connecting the output (9,11) to the output shaft (5)

3 DEPENDENT CLAIMS 4, 5

The combination of the features of dependent claims 4, 5 are neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:

Neither the document D1 nor D2 disclose these features.

4 INDEPENDENT CLAIM 1

- 4.1 Document D2, which is considered to represent the most relevant state of the art, discloses also the features a) to e) of the claim 1 (low clutch (48) Reverse (52) high clutch (44))

From this, the subject-matter of independent claim 1 differs in that:
A third epicyclic train mixes the output of the summing first epicyclic with the respective sides of the variator.

- 4.1.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)
The problem to be solved by the present invention may be regarded as:
Reduce the power circulated through the variator.
- 4.1.2 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:
Even the combination with D1 does not lead the skilled person to connect directly the output of the first epicyclic train with the mixing train.
- 4.1.3 Claim 2 is dependent on claim 1 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

Re Item VIII.

The invention can not be carried out if the mixing epicyclic is at the same time connected to the output of the first epicyclic and to the variator. Hence the word connected at line 13 of claim 1 should be deleted.